

## Patent claims

1. Intumescent body made of a non-intumescent polymer material providing the form of the body and a coating mass applied to the polymer material,

characterized thereby that

together with the coating mass, the polymer material results in an intumescent system in which the polymer material forms a carbon-donor component.

2. Intumescent body as defined in claim 1, wherein the polymer material has a carbon content of  $\geq 20$  weight %.

3. Intumescent body as defined in one of the preceding claims, wherein the polymer material provides a share of at least 20 weight % of the carbon in the intumescent system.

4. Intumescent body as defined in one of the preceding claims, wherein a difference  $\Delta T$  between a melting temperature  $T_s$  and a crystallization temperature  $T_c$  of the polymer material is  $\geq 40$  K.

5. Intumescent body as defined in one of the preceding claims, wherein a difference  $\Delta T$  is in the range of 40 to 80 K, preferably in the range of 45 to 75 K, particularly preferably in the range of 55 to 70 K.

6. Intumescent body as defined in one of the preceding claims, wherein the crystallization temperature  $T_c$  is  $\leq 200$  °C, preferably  $\leq 190$  °C.

7. Intumescent body as defined in one of the preceding claims, wherein the polymer material has a melting temperature  $T_s$  in the range of 50 °C to 400 °C or a decomposition temperature in the range of 150 °C to 500 °C.

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8. Intumescent body as defined in one of the preceding claims, wherein the intumescent system is a halogen-free and/or heavy metal-free system.

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9. Intumescent body as defined in one of the preceding claims, wherein the polymer material is selected from the following group: polyester, polyamide, polyacrylat, polyurethane, polyacrylnitril, aramids and derivatives of the aforementioned polymers.

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10. Intumescent body as defined in one of the preceding claims, wherein the coating mass contains a flame retarding agent.

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11. Intumescent body as defined in one of the preceding claims, wherein the coating mass has the following composition:

25 to 95 weight % of an aqueous dispersion containing polyurethane or polyacrylat,

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0.5 to 10 weight % of an isocyanate or a melamine-formaldehyde and

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3 to 15 weight % of the flame retarding agent.

12. Intumescent body as defined in one of the preceding claims, wherein the flame retarding agent is an acid donor.

13. Intumescent body as defined in one of the preceding claims, wherein the acid donor is ammonium polyphosphate.

5 14. Intumescent body as defined in one of the preceding claims; wherein, in addition, 0.1 to 1.0 weight % of an agent for deaeration are included.

10 15. Intumescent body as defined in one of the preceding claims, wherein, in addition, 0.1 to 1.5 weight % of an insecticide and/or a bactericidin are included.

15 16. Intumescent body as defined in one of the preceding claims, wherein the polymer material is present in the form of fibers or woven cloth, knitted fabric made thereof.

17. Use of a non-intumescent polymer material providing the form of a body as carbon-donor component of an intumescent system.

20 18. Use as defined in claim 17, wherein further components of the intumescent system are contained in a coating mass applied to the polymer material.

25 19. Use as defined in one of the claims 17 or 18, wherein the polymer material has a carbon content of  $\geq 20$  weight %.

30 20. Use as defined in one of the claims 17 to 19, wherein the polymer material provides a share of at least 20 weight % of the carbon in the intumescent system.

21. Use as defined in one of the claims 17 to 20, wherein a difference  $\Delta T$  between a melting temperature  $T_s$  and a crystallization temperature  $T_c$  is greater than 40 K.

5 22. Use as defined in one of the claims 17 to 21, wherein the difference  $\Delta T$  is in the range of 40 to 80 K; preferably in the range of 45 to 75 K, particularly preferably in the range of 55 to 70 K.

10 23. Use as defined in one of the claims 17 to 22, wherein the crystallization temperature  $T_c$  is  $\leq 200$  °C, preferably  $\leq 190$  °C.

15 24. Use as defined in one of the claims 17 to 23, wherein the intumescent system is a halogen-free and/or heavy metal-free system.

25. Use as defined in one of the claims 17 to 24, wherein the polymer material is selected from the following group:  
20 polyester, polyamide, polyacrylat, polyurethane, polyacrylnitril, aramids and derivatives of the aforementioned polymers.

26. Use as defined in one of the claims 17 to 25, wherein the intumescent system is a system causing a chemical or  
25 physical intumescence.

27. Use as defined in one of the claims 17 to 26, wherein the coating mass contains a flame retarding agent.

30 28. Use as defined in one of the claims 17 to 27, wherein the polymer material has a melting temperature  $T_s$  in the range of 50 °C to 400 °C or a decomposition temperature in the range of 150 °C to 500 °C.

29. Use as defined in one of the claims 17 to 28, wherein the coating mass has the following composition:

5 25 to 95 weight % of an aqueous dispersion containing polyurethane or polyacrylat,

0.5 to 10 weight % of an isocyanate or a melamine-formaldehyde and

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3 to 15 weight % of the flame retarding agent.

30. Use as defined in one of the claims 17 to 29, wherein the flame retarding agent is an acid donor.

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31. Use as defined in one of the claims 17 to 30, wherein the acid donor is ammonium polyphosphate.

32. Use as defined in one of the claims 17 to 31, wherein, in addition, 0.1 to 1.0 weight % of an agent for deaeration are included.

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33. Use as defined in one of the claims 17 to 32, wherein, in addition, 0.1 to 1.5 weight % of an insecticide and/or a bactericidin are included.

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34. Use as defined in one of the claims 17 to 33, wherein the polymer material is present in the form of fibers or woven cloth, knitted fabric made thereof.

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